CHANGING AN INDUSTRY
Market Rate Delivery of Low Energy Passivhaus Buildings

Presenter: Adam J. Cohen, RA, VT, NH, CO, MD, CPHC NA & EU, LEED AP ®

Why Change?
Do we really need to have this conversation?

Nope, nope, so much nope
Proactive or Reactive
It's our choice

What will YOU do?
It's our choice
We have no choice
From a 2012 Presentation

“Investing in value instead of energy consumption requires little financial efforts but rather creativity and intelligent solutions” ~ Wolfgang Feist

Code Adoption by State
National Legislation
Market Adoption

Define the Problem
The first step in solving a problem

- Design & Construction
  - Broken process
  - Lack of integration
  - Lack of respect
  - Lack of basic physics
  - Lack of a useful feedback mechanism
  - Lack of components

“Forget everything you know and walk in backwards” ~ Katrin Klingenberg
What do we need to do?

- Create better process
- Create better integration
- Educate and inform the profession in basic physics
- Design and institute feedback mechanisms
- Create, test, refine and market components

Craft Solutions

Envision the product properties
- The product will seek to create and leverage efficiencies in design, manufacturing and construction to create a market rate product as part of a solution for high performance construction in sector being served.

Design
- The product will allow designers flexibility but will allow designer to trade flexibility for reliable cost savings, quality control, ease of detailing, ease of energy modeling, robust durability

Manufacturing
- The product will embrace a lean standardized approach with minimized shop drawing, automated parts creation, single point entry, efficiency in factory motion

Construction
- The product will be intuitive to North American trades, consolidate or eliminate site labor, create simple solutions to complex issues
Design

Allows designers flexibility, constrains flexibility for reliable cost, quality control, ease of detailing, ease of energy modeling, robust durability

- **Standard System**
  - Think Lego®
  - Design Flexibility
  - Ease of Detailing
  - Quality Control
  - Robust & Durable
  - Reliable Cost
  - Easy Energy Models
Manufacturing

Embrace a lean standardized work approach, minimized shop drawing, automate parts creation, single point entry, efficiency in factory motion

- **Standard System** (Inspired by Henry Ford – “Any color as long as it’s white”)
  - 8’ & 9’ Heights
  - 2’ Inside and Outside Corners
  - Standard Passivhaus Certified Single & Twin Windows and Doors
  - Affordable (Data from 54 projects priced)
    - Single Family - $20-$30 (USD) per sq ft floor area
    - Single Family - $260-$390 (NZD) per sq meter
    - Multi Family - $8-$15 (USD) per sq ft floor area
    - Multi Family - $104-$195 (NZD) per sq meter
    - Eliminates Shop Drawings
    - Components pre-cut & jigged to reduce production time
    - EU Windows & Doors
      - Simplified Purchase
      - Delivered Installed & Airtight

- **Custom System**
  - ANY Height
  - ANY Configuration
  - ANY Munster Joinery Passivhaus Certified Windows and Doors
  - Affordable - $40-$75 (USD) per sq ft floor area
  - Affordable - $520-$975 (NZD) per sq meter
  - NEED Shop Drawings
  - ALL Components - custom cut and layout
  - EU Windows & Doors –
    - Simplified Purchase
    - Delivered Installed & Airtight (when size allows)
Construction

The product will be intuitive to North American trades, consolidate or eliminate site labor, create simple solutions to complex issues.

- Modular systems
- Slab Foundations
- Basement Foundation
- Framed Walls
- Require basic skills
- Requires less labor
- Allows faster construction

Construction

J Form
Construction
J Form – Bottom Plate

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CHANGING AN INDUSTRY
Market Rate Delivery of Low Energy Passivhaus Buildings
Construction
J Form - Finish

Construction
Walls
Construction
Walls

Construction
Band
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Market Rate Delivery of Low Energy Passivhaus Buildings

Construction
Walls

Construction
Lid
Construction

Ready for Testing

Construction

.5 ACH 50 – BEFORE LEAK CHASING!!
Construction
.45 ACH 50

Construction
Basement
Is this really the solution?
Of course not, it’s a step on the way!

Conclusion
And now a message from Dr. Feist

“Investing in value instead of energy consumption requires little financial efforts but rather creativity and intelligent solutions”

~ Wolfgang Feist Dresden Conference 2010
Questions & Contact

Adam J. Cohen, RA: MD, VT,NH,CO, CPHC NA & EU, LEED AP ©
Adam.CohenAJ@gmail.com
540.312.8400